The High School

Latin, Eighth and Ninth Grades: (KATHARINE M. STILWELL.) A few traditions connected with the early history of Rome were given in the March COURSE OF STUDY. The Latin was simplified so that beginners could read it without too much trouble, and those topics were chosen which showed how the Romans regarded the gods as helping to start their race and government. This month there is still further material of the same sort, though somewhat more difficult, the stories showing how the gods helped to found Rome through Romulus, and to give it laws through Numa.

The reason for choosing these stories is not that they all happened, but that they all represent what the Romans believed to have happened, and so give the ideas and the ideals of the Romans. They believed that they were a people chosen and directed by the gods to establish law and order in the world, and these stories will disclose that belief to the students in the concrete form in which it was held by the Romans themselves.

The passage from Caesar's Gallic War is given to test the ability of the students in reading a piece of Latin in its original form, as well as to arouse their curiosity and ambition.

Latin Lessons for Eighth and Ninth Grades

Number VI

Romani Imperii Exordium

Proca, rēx Albānōrum, Numitōrem et Amūlium fīliōs habuit. Numitōrī quī nātū māior erat, regnum relīquit; sed Amūlius, pulsō frātre, rēgnāvit et Rheām Silviam, ēius fīliam, Vestae sacerdōtem fēcit, quae tamen Rōmulum et Remum geminōs ēdidit. Amūlius parvulōs alveō exposuit abiēcitque in Tiberim, quī tunc fōrte super rīpās erat effūsus et mox relābens eōs in siccō relīquit. Vāstae tum in iīs locīs sōlitūdinēs erant. Lupa ut fāmā trāditum est, ad vāgītum accurrit, īnfantēs nūtrīt et linguā lambit.

Cum lupa saepius ad parvulōs reverterētur, Faustulus, pāstor rēgius, eōs tulit in casam et Accae Laurentiae dedit coniugī quae puerōs ēducāret. Adultī deinde hī inter pāstōrēs prīmō lūdicrīs certāminibus vīrēs auxēbant, deinde ā rapīnā pecorum arcēbant latrōnēs, quī posteā Remum cēpērunt. Tum Faustulus indicāvit Rōmulō, quis esset eōrum avus, quae māter. Rōmulus statim armātīs pāstōribus Albam properāvit, frātrem līberat, occīsō Amūliō avum Numitōrem in rēgnum restituit. Deinde Rōmulus et Remus urbem in iīsdem locīs, ubi expositī ubique ēducātī erant, condidērunt.

Romulus, Romanorum Rex Primus

Rōmulus imāginem urbis magis quam urbem fēcerat; incolae deerant. Erat in proximō lucus; hunc asȳlum fēcit. Et statim eō mīra vīs latrōnum pāstōrumque cōnfūgit. Cum vērō uxōrēs ipse populusque nōn habērent, legātōs circā vīcīnās gentēs mīsit quī societātem cōnūbiumque novō populō peterent. Nusquam benīgnē fīnitimī lēgātiōnem audīvērunt, sed plerique rogāvērunt; "Cūr nōn fēminīs quoque asȳlum aperuistis?"

Rōmulus lūdōs parat; deinde fīnitimīs spectāculum indīcit. Multī convēnērunt ut urbem novam vidērent, māximē Sabīnī cum līberīs et coniugibus. Ubi spectāculī tempus vēnit, eōque conversae mentēs cum oculīs erant, tum sīgnō datō iuvenēs Rōmānī discurrunt et virginēs rapiunt.

Numa Pompilius, Romanorum Rex Secundus

Successit Rōmulō Numa Pompilius, vir inclitā iūstitiā et religiōne. Is Curibus, ex oppidō Sabīnōrum, accītus est. Quī cum Rōmam vēnisset, ut populum ferum religiōne mītigāret, sacra plūrima instituit. Lēgēs quoque plūrimās et ūtilēs tulit. Ut vērō māiōrem īnstitūtīs suīs auctōritātem conciliāret, simulāvit sibi cum deā Egeriā esse collēoquia nocturna. Lūcus erat, quem medium fōns perennī rigābat aquā; eō saepe Numa sine arbitrīs sē inferēbat, velut ad congressum deae. Ita omnium animōs eā pietāte imbuit, ut fidēs āc iūsiūrandum nōn minus quam legum et poenārum metus cīvēs continēret. Bellum quidem nūllum gessit, sed nōn minus civitātī prōfuit quam Romulus. Ita duo deinceps regēs, ille bellō, hīc pāce, civitātem auxērunt.

Vocabulary

sacerdōs, ōtis, *priest, priestess.*
tamen, adv., *notwithstanding, yet, still.*
geminī, ōrum, m., *twins.*
ēdō, 3, *give out, give birth to.*
parvulus, a, um, *small, little.*
alveus, ī, *a wooden vessel, trough.*
abiciō, 3, *throw away.*
rīpa, ae, f., *bank, shore.*
effūsus, a, um, *poured out.*
mox, adv., *soon.*
relābens, entis, *flowing back.*
siccus, a, um, *dry.*
lupa, ae, f., *she-wolf.*
fama, ae, f., *report, tradition.*
vāgītus, ūs, m., *cry, wailing.*
nūtriō, 4, *nourish, nurse.*
lambō, 3, *lick, lap.*
casa, ae, f., *cottage, hut.*
certāmen, inis, n., *contest.*
pecus, oris, n., *cattle, flock, herd.*
arceō, 2, *shut up, keep off.*
latrō, ōnis, m., *robber.*
avus, ī, m., *grandfather.*
properō, 1, *hasten.*
frāter, tris, m., *brother.*
restituō, 3, *replace, restore.*
magis, adv., *more, rather.*
quam, adv., *as, than.*
incola, ae, f., *inhabitant.*
vīs, f., *strength, force.*
cōnfugiō, 3, *flee together, take refuge.*
vērō, adv., *in truth, indeed.*
lēgātus, ī, m., *ambassador.*
lēgātiō, ōnis, f., *embassy.*
circā, prep., *around, among.*
conubium, ī, n., *marriage, right of intermarriage.*
petō, 3, *strive for, seek.*
quoque, conj., *also, too.*
conversus, a, um, *turned.*
rapio, 3, *seize and carry off.*
inclitus, a, um, *famous.*
acciō, 4, *summon, invite.*
lēx, lēgis, f., *law.*
ūtilis, e., *useful.*
auctōritās, ātis, f., *authority, influence.*
collōquium, ī, n., *conversation.*
fōus, fōutis, m., *spring, fountain.*
rigō, 1, *water, irrigate.*
arbiter, trī, m., *spectator, witness.*
congressus, ūs, m., *meeting.*
imbuō, 3, *wet, steep, fill.*
poena, ae, f., *punishment.*
cīvitās, atis, f., *citizenship, state.*
prōsum, *be useful to, benefit.*

Gaul

(From Caesar's Gallic War, I, 1)

The Nations of Gaul

Gallia est omnis dīvīsa in partīs trīs; quārum ūnam incolunt Belgae, aliam Aquītānī, tertiam quī ipsōrum linguā Celtae, nostrā Gallī appellantur. Hī omnēs linguā, īnstitūtīs, lēgibus inter sē differunt. Gallōs ab Aquītānīs Garumna flūmen, ā Belgīs Matrōna et Sēquana dividit.

Their Characters Compared

Hōrum omnium fortissimī sunt Belgae; propterea quod ā cultū atque hūmānitāte prōvinciae longissimē absunt, minimēque ad eōs mercātōrēs saepe commeant atque ea quae ad effēminandōs animōs pertinent important; proximīque sunt Germānīs quī trāns Rhēnum incolunt, quibuscum continentur bellum gerunt. Quā dē causā Helvētiī quoque reliquōs Gallōs virtūte praecēdūnt, quod ferē cotīdiānīs proeliīs

cum Germānīs contendunt, cum aut suīs fīnibus eōs prohibent aut ipsī in eōrum fīnibus bellum gerunt.

The Territories of Each

Eōrum ūna pars, quam Gallōs obtinēre dictum est, initium capit ā flūmine Rhodanō; continētur Garumnā flūmine, Oceanō, fīnibus Belgārum; attingit etiam ab Sēquanīs et Helvētiīs flūmen Rhēnum; vergit ad septentriōnēs. Belgae ab extrēmīs Galliae fīnibus oriuntur pertinent ad īnferiōrem partem flūminis Rhēnī, spectant in septentriōnem et orientem sōlem. Aquītānia ā Garumnā flūmine ad Pyrēnaeōs montīs et eam partem Ōceanī quae est ad Hispāniam pertinet; spectat inter occāsum sōlis et septentriōnes.

(Relief map of Gaul will be used.)

Vocabulary

NOUNS.

mercātor, ōris, m., *a trader.*
virtūs, ūtis, f., *courage.*
proelium, i, n., *battle.*
fīnis, is, m., *end,* (plural) *boundaries.*
bellum, i, n., *war.*
septentriōnēs, m., *the north.*
sōl, sōlis, m., *the sun.*
mōns, montis, m., *a mountain.*
occāsus, us, m., *a setting.*

VERBS.

incolō, 3, *inhabit.*
commeō, 1, *go back and forth.*
praecēdō, 3, *precede, surpass.*
prohibeō, 2, *hold off, restrain.*

VERBS.

obtineō, 2, *hold.*
contineō, 2, *hem in.*
attingo, 3, *touch.*
vergō, 3, *slope.*
orior, 3 (deponent), *arise, start.*
pertineō, 3, *tend, extend.*
specto, 1, *look at, face.*

ADJECTIVES.

trēs, *three.*
fortis, e., *brave.*
cotīdiānus, a,um, *daily.*
oriēns, entis, *rising.*

ADVERBS.

propterea quod, *because.*
continenter, *continually.*
ferē, *almost.*

Ninth and Tenth Grades

Latin, Ninth and Tenth Grades: (ALLEN W. GOULD.) During March the pupils read (B. G. I., 2-29) about the attempt of the Helvetii to move out of their country. They were encouraged to study the account as a chapter in universal history, as well as one of the earliest pages of modern European history. When they read in *Caesar* that this people wished to leave their country because it was too small for them, the students were asked to measure Switzerland, and learn the character of its surface and the number of inhabitants to the square mile, so that by comparing it with some other half-civilized country they could judge how far the Helvetii really were crowded. The pupils had already learned from their study of the condition of the Gauls and Germans, that the less civilized people require more room, so that they were ready to ask themselves what they would have felt like doing if they had been Helvetians in Caesar's time. They were then asked what they would have done if they had been Haedui or Sequani, threatened with invasion by the Helvetii and their allies. Then the attempt was made to have them put themselves in Caesar's place, as the governor of the province and the defender of Roman civilization, and ask themselves what they would have done. One result of this study was that the students were eager to know just what Caesar did do, and whether it was possible for him to have done better than he did.

Caesar's rapid journey from Rome to Geneva required the pupils to measure the distance traveled, and to learn the character of the country. This brought up the nature and meaning of Roman roads, while the hurried return of Caesar to Northern Italy to bring back all his legions across the Alps, that he might check the

Helvetii, served as an object-lesson to show how the roads enabled Rome to protect any part of her government, by concentrating all her forces on that point, thus establishing peace in all her wide domain, and making the growth of civilization possible. The students are also asked what they think should be the result of the still more rapid transit which the railroads give us to-day.

As this was the first campaign of the students, they studied with some detail the Roman and Gallic implements of war. The weapons of the two races were compared with each other, showing the higher stage of development to which the Romans had attained. They were also compared with the weapons of early savages and of the civilized races of to-day, and an attempt was made to have the student see the gradual growth from the primitive stone or stick to the machine gun. In conclusion, the pupils were asked which of these weapons they thought would be likely to prove most peaceful—most successful in keeping the peace.

During the month of April we expect to read the story of Ariovistus and the Germans (B. G. I., 30-54), and we shall try to see what it might have meant to the world and the Anglo-Saxon race of to-day if the Germans of the first century B. C. had overrun Gaul and destroyed Rome before the Gauls had time to absorb the Roman civilization. The account of the German culture, which the students have just read, and the invasion of the Cimbri and Teutones, which they read last fall, have given them some idea of the elements involved in the problem.

Greek, Ninth and Tenth Grades: (ALLEN W. GOULD.) During this month the beginners in Greek will continue reading easy Greek, as outlined in the March COURSE OF STUDY.

German, Ninth and Tenth Grades: (DR. SIEGFRIED BENIGNUS.) To assist the pupils in acquiring a clear understanding of Greek history, German continues to be correlated with this study in the way explained in the former numbers of the COURSE OF STUDY. The subject for April will be the time of Alexander the Great, illustrating his expeditions to Greece, Asia, and Africa, and his vast plan of Hellenizing the Orient.

Reading: Continuation of *Picture Book.* Exercises in the language of everyday life: Questions and answers about traveling. The memory work is Eichendorff's beautiful hymn to the German forest. The pupils will also sing it according to the well-known melody of Felix Mendelssohn-Bartholdy.

Der Jäger Abschied

Wer hat dich, du schöner Wald,
Aufgebaut so hoch da droben?
Wohl den Meister will ich loben,
So lang noch mein' Stimm erschallt.
Lebe wohl,
Lebe wohl, du schöner Wald!

Tief die Welt verworren schallt,
Oben einsam Rehe grasen,
Und wir ziehen fort und blasen,
Dass es tausendfach verhallt:
Lebe wohl,
Lebe wohl, du schöner Wald!

Was wir still gelobt im Wald,
Wollen's draussen ehrlich halten,
Ewig bleiben treu die alten:*
Deutsch Panier, das rauschend wallt,
Lebe wohl!
Schirm' dich Gott, du schöner† Wald.

Joseph Freiherr von Eichendorff, 1788–1857.

*Variation: *alten, Bis das letze Lied verhallt.*

†*Deutscher.*

French, Ninth and Tenth Grades: (LORLEY ADA ASHLÉMAN.) During April, Alphonse Daudet's *La Dernière Classe,* as dramatized by these grades, will be publicly presented. *Le Siège de Berlin,* also by Daudet, will be read during this month, as well as *Le Savetier et le Financier* from La Fontaine's *Fables.*

For the grammar work, the four regular conjugations will be finished, together with the conjugations of the most common irregular verbs.

History: Ninth, Tenth, and Eleventh Grades: (GUDRUN THORNE-THOMSEN.) The dominant idea in this month's work will be:

What ideals and ideas did Greek civilization give to the world—in government, art, philosophy, literature, science, and social life?

What aspects of our modern civilization owe their origin to the Greeks?

What features and ideas would seem familiar to an Athenian introduced into our modern society?

1. Greek drama. The *Antigone* of Sophocles will be read and discussed. The pupils' motive in this study will be the same as in the modeling of the Parthenon, mentioned in last month's outline, namely, through a study of Greek art to get an insight into the ideals and ideas of which it is an embodiment. Points for discussion:

1. Part played by the theater in Greek social life.
2. How supported.
3. Relation to religion.
4. To what would it correspond in modern life?
5. Purpose of the dramatist.
6. His popularity.
7. Comparison of Greek and modern drama.
8. Function of the actor on Greek, on modern stage.
9. *Antigone* of Sophocles. (a) Construction of the play. (b) Part played by the chorus. (c) Discussion of characters. (d) What impelling forces move the characters? (e) What great principles seem to underlie Greek society, judging from the drama? (f) Religious and social ideas shown in the drama.
10. The children have already modeled in clay the Greek theater, and are thus familiar with its different parts. The mechanical aspect of the stage performance will be considered; for instance, the revolving doors, the scenery, etc., as well as the costumes of the actors, masks, etc.

II. Political ideals of the Greeks.

1. Abstracts from Aristotle will be read.
2. Greek idea of state compared with modern.
3 What are the principles of democracy?
4. How carried out in the Athenian government? In ours?
5. In studying the political ideals underlying the Athenian democracy, the children will always remember their own position as citizens of a democratic community in school and at home, and will make comparisons of their own struggle for self-government with that of the Greeks.
6. Function of government in Greece in the United States.
7. Limitation of Greek political ideals.
8. Reading in class Plato's criticism of Athenian democracy.
9. How far does Lincoln's definition of democracy—"government of the people, by the people, for the people"—apply to the Athenian constitution?
10. What is our political inheritance from Greece?

As the election of the chief executive of our city occurs in April, we shall make a study of municipal affairs in Chicago. What are the duties of the mayor, of the council? How are they elected? What are the departments of our municipal government, and how are they conducted? Relation of city government to that of the state?

The children will be divided into groups and report on the above topics.

III. Social ideals of Greek civilization.

1. Cohesive forces of Greek society? Of modern society?
2. For what purpose was it organized?
3. What qualities enabled the Athenian to fulfill his duties as a citizen?
4. What is expected of our citizens?
5. Position of slavery in Greece.
6. Industrial life in Greece compared with modern.
7. Difference between slave and free labor.
8. Compare industrial life in the South before and after the Civil War.
9. Effect of slavery upon artistic and intellectual progress in Greece; effect on moral character; on stability of the state.
10. Treatment of the slaves in Athens and of the serfs in Sparta. Quotations from Aristotle concerning slavery.
11. At what cost was Greek civilization carried on?
12. Slavery as an institution.

13. Position of woman in Athens and in Sparta.

IV. Greek philosophy and thought.

1. Favorable conditions.

2. Life and character of Socrates. Read in class his speech at the trial.

3. Debt of modern thought to Greek philosophers.

4. Abstracts from Plato's dialogues. Emerson's estimate of Plato.

5. Prose writers. The great historians: (a) Herodotus, "the father of history," "the prince of story-tellers." (b) Thucydides. Compare his style with that of Herodotus. (c) Plutarch. What constitutes a good biography?

6. Discuss and criticise this statement by Henry Maine: "Nothing moves in this world that is not Greek in its origin."

Art Expression: The modeling of the Parthenon will be completed.

Dramatic Expression: Scenes from the *Antigone* of Sophocles.

Written Work: Character studies from the *Antigone*. Papers will be written on some of the above topics.

Physiography, Ninth Grade: (WALLACE W. ATWOOD.) Subject: VOLCANOES. This work will be introduced through the study of lantern-slides, pictures, and written descriptions of recent volcanic outbursts. By these means the students should become familiar with the chief phenomena associated with the life history of a volcano, and be prepared, with facts and interest, to discuss the causes for vulcanism, and to arrange the facts collected in an orderly way.

I. Phenomena preceding eruption.

Read story of Monte Nuovo, a small volcano on the north side of the Gulf of Naples.

1. Examples of great earthquakes; 1755, at Lisbon; 1888, at Charleston, S. C.; 1812, in lower Mississippi Valley.

2. Distribution of earthquakes: Common in southern Italy, in young block mountains, in lofty mountains, in Japan, among the Azores, in Peru, Equador, etc.

3. Results from earthquakes.

4. Causes for earthquakes.

II. Growth of volcanoes.

1. Material thrown out, such as dust, bombs, blocks of rock, gases, and steam. Read story of Krakatoa.

2. Lavas and lava flows (kinds of lavas should be studied from specimens).

(a) Surface of flows.

(b) Cooling of lavas.

(c) Rate of flow. How does this change as cooling goes on? Find figures regarding flows of Vesuvius and Mauna Loa.

(d) Caves in lava flows.

3. Formation of craters. Study Monte Somma and Crater Lake.

III. Draw a cross-section of a great volcano which has been built up by a succession of explosions and outpourings of lavas.

(See section in Mill's *Realm of Nature.*)

IV. Development of cinder cones.

1. Their form.

2. Their structure.

V. Dissection of volcanoes and lava flows.

1. Development of mesas.

2. Occurrence of volcanic necks.

VI. Distribution of volcanoes.

VII. Distribution of great lava flows. In this connection study central France, the Faroe Islands, Giant's Causeway, the Columbia plateaux of Washington, Oregon and Idaho, the western slope of the Sierra Nevada Mountains, the Hawaiian Islands, and India.

VIII. Causes of vulcanism.

Art Expression: Modeling in sand and with chalk: Cinder cones, calderas, volcanic peaks, such as Mount Shasta or Hood, Monte Somma and Vesuvius, lava flows, etc. Water-colored paintings of volcanic mountains and lava plains.

References: Davis, *Physical Geography;* Diller, *Mount Shasta;* Russell, *Volcanoes of North America;* Geikie, *Ancient Volcanoes of Great Britain;* Judd, *Volcanoes;* Dodge, *Volcanoes*, J. of School Geog., 1897.

Experimental Course in Astronomy, Ninth and Tenth Grades: (GEORGE W. MYERS.) Continued from COURSE OF STUDY for March.

EXPERIMENT No. 15. To establish a meridian.

(a) Without a time-piece.

(1) By the Polestar and plumb-line.

Set four vertical poles, or pieces of gas-pipe, 6 or 7 feet tall, in the ground at the four corners of a rectangle 5 x 10 feet, the long dimension being placed approximately (by guess) north and south. Connect the tops of the poles with horizontal cross-pieces to hold them in place. Attach a heavy weight (a brick) to each end of a smooth cord, 22 to 24 feet

long, and hang it over the middle of the middle points of the north and south end cross-pieces. Allow the ends of the cord to hang freely, the weights held at about the same distances from the ground, and low enough to allow them to swing freely in buckets of water if the wind is strong.

By glancing at a star atlas, it will be seen that Delta Cassiopeia, Zeta Ursa Majoris (the star at the bend of the handle of the Great

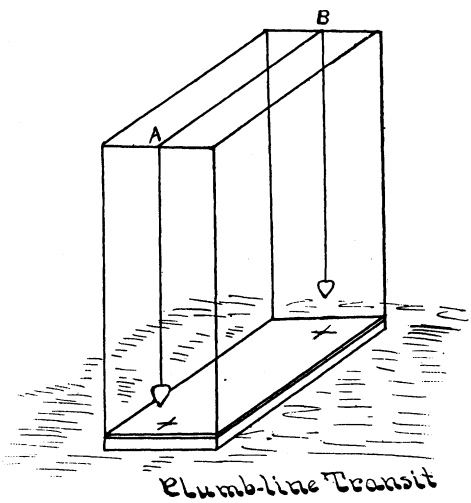


Fig. 15

Dipper), and Polaris (the Polestar), are all on the same celestial meridian, or hour circle. They are therefore in the meridian of any place at the same instant. If, then, an observer station himself behind (south of) the south plumb-line, and look northward at about the time either of the two first mentioned stars comes to the meridian, he may shift the plumb-line nearest him toward the right or left until this star and Polaris are just covered by the plumb-lines, at which instant the plumb-lines will be in the meridian. If the cross-pieces are now notched a little just where the cord lies, the plumb-line will always indicate the meridian by placing it in these notches.

If plumb-bobs are used, the points just beneath them may be transferred to the ground, or to a stone placed in proper position, and the meridian may then be identified at will.

(2) By observing the sun.

Suspend a plumb-line near the middle of a board on which a number of concentric circular bands, alternating black and white (black lines between white spaces will do), struck with the point P of the board just beneath the plumb-bob as center, and provide the plumb-line with a sliding bead. (See Exp. No. 20.)

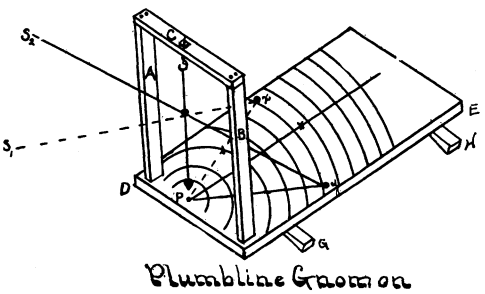


Fig. 16

Note the point (x) of any circle where the shadow of the bead crosses it in the morning, and the point (y) where the same circle is crossed by the shadow in the afternoon. Connect these two points with the center of the circle and bisect the angle between the connecting lines. The bisector is in the meridian (if the board DE has not been moved meanwhile), and the line may be readily transferred to and fixed upon the ground.

(b) With a time-piece.

Obtain the correction of the time-piece by methods to be given later, and compute the time when the star should be on the meridian. If the time-piece is rated to keep sidereal time, the right ascension of the star, obtained from the *American Ephemeris*, will be the correct time when the star crosses the meridian above the pole (upper culmination), and this right ascension increased by 12 hours will be the correct time of lower culmination.

If the time-piece keeps mean solar time, the sidereal time can be found approximately by adding to mean solar time 2 hours for each month, and 4 minutes for each odd day, since the Vernal Equinox (March 21st). The table at the end of the *American Ephemeris* will make possible a more accurate determination of the sidereal from the mean solar time, and vice versa. After the sidereal time has been determined, it may be compared with the right ascension as before. The difference is the correction of the time-piece, if it is slow, or if fast.

EXPERIMENT NO. 16. To determine the latitude approximately.

(a) Set a stake vertically on a level surface, and measure the length of the shortest shadow during the day. Also measure the height of the

stake. Draw a right angle on paper, and to any convenient scale plat these measured lengths on its sides. Connect the ends of the platted lengths and measure with a protractor the angle which is adjacent the side representing the length of the shadow. This angle will be the slant of the rays to the horizon. Take the declination of the sun for the date from the *American Ephemeris*, or from *The Old Farmers' Almanac* (Wm. Ware, Boston, price 10c.), add this to the measured slant and subtract the sum from 90°, and the difference will be the latitude.

(b) With the aid of the plumb-line gnomon (Fig. 16), described above (Experiment No. 15, (a), (2), the length of the radius of the circle on which the shadow of the bead falls when it is nearest the bob and the height of the bead above the surface of the board may be used as the shadow length and height of stake above.

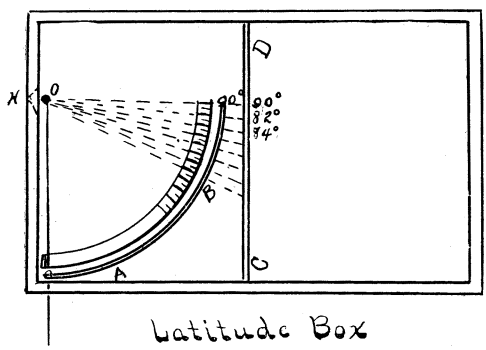


Fig. 17

(c) Perforate the middle of one end of a pasteboard box with a needle-hole, *H*, near the bottom. Graduate into degrees a quadrant described with a point, *O*, on the bottom of the box, as near the needle-hole as possible, as a center. A strip, *AB*, of cardboard may be bent around the arc, and pasted or glued to the bottom of the box. Or, a straight strip, *CD*, may be fastened across the box, and the graduations may be transferred to it then, as shown at 90°, 82°, etc., until *C* is reached, when they may be transferred to the lower edge of the box. (This idea is due to Professor Todd, of Amherst College.)

To use the box. Place it in position with its bottom against a vertical north and south wall, or more accurately, within the meridian plane, determined as in the last experiment, so that the plumb-line, *OP*, hangs just above the zero graduation mark. The image of the hole, *H*, cast by the sun at noon may then be seen on *AB* or *CD*, and the corresponding reading be made. This gives the zenith distance of the sun directly, and with the almanac declination of the sun for the date, the latitude will be found from —

Zenith distance *minus* the declination, when the sun is south of the equinoctial (from September 22d to March 21st) and zenith distance *plus* the declination when the sun is in north declination (from March 21st to September 22d.)

EXPERIMENT NO. 17. To construct a crude transit instrument.

(a) The vertical north and south wall of a building, or of two stakes set vertically in a line parallel to such a wall, may be used as a crude transit instrument by placing the eye against the north edge of the wall or north of the north stake, the observer looking southward, and noting the time when a star, or other heavenly body, passes behind the wall, or across the plane of the two stakes.

(b) A very good crude transit instrument is obtained by setting four vertical posts, or gas-pipes, in the ground as suggested by the cut of Experiment No. 15, (a), (1). The posts should be six to eight feet high, the long side of the rectangle inclosed by the feet of the uprights, being north and south. Suspending a continuous plumb-line, carrying a bob at both ends (the bobs may be allowed to swing in vessels of water to avoid the effects of the wind), the vertical portions of the string, or either vertical end segment with the horizontal middle segment will fix the meridian plane after it has once been fixed by star observations as suggested in Experiment No. 15, and the east and west top cross-pieces have been notched at *A* and *B*. North stars may be observed by placing the eye south of the south vertical end and looking northward, and south stars by standing north of the north end and looking southward.

(c) By the home-made apparatus explained on page 23 of Miss Byrd's *Laboratory Manual in Astronomy* (Ginn & Co.), a book which is highly recommended to all interested in elementary practical astronomy.

EXPERIMENT NO. 18. Construct a wooden altazimuth instrument.

With a radius of two feet describe on and cut out of a ⅞-inch oak board an arc, *ADB*, and graduate it to any desired accuracy. With inch oak stuff frame together a quadrant, as

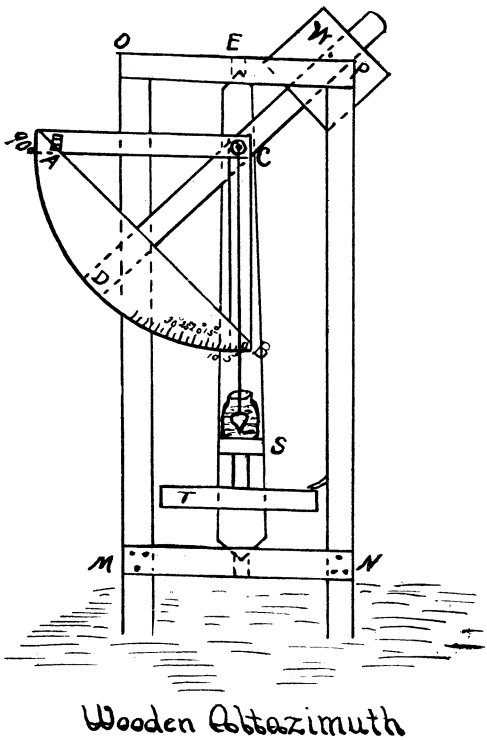


Fig. 18

ACBD in the cut. Bolt it at C to an upright, *EF*, tapered at either end to fit conical holes, in two pieces, *OP* and *MN*, which are nailed to two posts set firmly in the ground. Leave the bearing loose enough to allow the quadrant to move freely about *C*. The stick, *DC*, may be allowed to extend beyond *C* far enough to carry a weight, *N*, for a counterpoise; otherwise the bearing, *C*, should be adjustable. Let the bolt at *C* be provided with a long, pointed head and fit a notched sight at *A*. Attach a plumb-line to the head, *C*, and allow it to hang freely in a vessel of water (battery cell or tin cup) supported by a stand, *S*, on the post, *EF*. Placing a carpenter's level on the top of *AC*, hold the quadrant so that the bubble will play, and start the graduations with the point which then falls just beneath the line near *B*, the graduations rising to 90° at *A*.

If desired, a circular board, graduated and fixed horizontally to the post, *EF*, just below the stand, may be added, from which, by the aid of a pointer fixed to the post, *OM* or *PN*, horizontal angles, or azimuths, may be read. All measurements of altitude and azimuth which are made with a universal instrument may be roughly made by this apparatus, if the objects used are bright.

EXPERIMENT NO. 19. To make a wooden quadrant for hand use. Join two ¾-inch surfaced boards together, reinforcing them by cleats, if necessary, and cut from them a quadrant of radius 18 inches, as suggested by the accompanying figure. Graduate it, and provide it with a plumb-line, as shown. By means of a handle attached as represented in the edge view, altitudes of naked-eye objects may be measured by hand, much after the fashion of the simplest forms of the sextant. The sight-line, *SC*, is determined by a notched sight at *S*, and a pin or nail at *C*. The graduation lying just beneath the cord at *D*, when the sight line is directed to the object, furnishes the angular elevation of the object

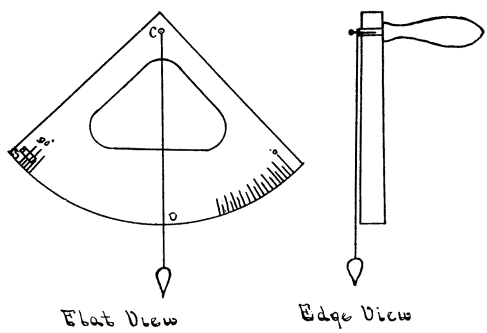


Fig. 19

above the horizon. The reading may be very much facilitated by an assistant. Altitudes of the moon, of the brighter stars, and with the use of colored glasses to protect the eyes, of the sun may be measured with rather surprising accuracy with this device, after a little practice.

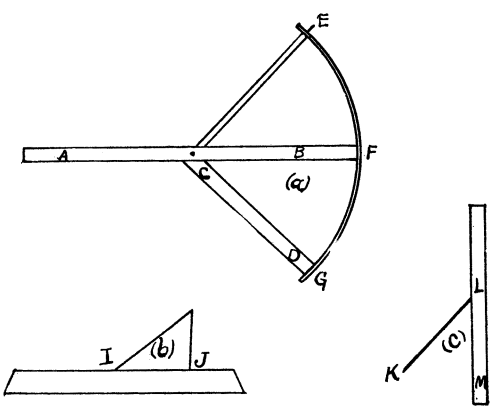
EXPERIMENT NO. 20. Construct a Tycho's quadrant. If the quadrant, *ACBD*, of the last experiment be made smaller and lighter, and a pin be inserted at *C* to serve for a handle, the quadrant may be supported by hand. In this case an assistant observer will note the reading which falls under the plumb-line.

EXPERIMENT NO. 21. Construct a plumb-line gnomon. Surface a board (*DE*, Fig. 16), 2 feet by 3 feet, and fix two uprights, *A* and *B*, vertically upon it. Tie the uprights with a cross-piece, *C*, at the top, and suspend a plumb-line, provided with a sliding bead, from the middle of *C*. Varnish or paint the surface, and with thin wedges at *G* and *H* level the board

carefully with a spirit level and mark the point just beneath the lower tip of the bob. Hereafter the board may be leveled by sliding the wedges in and out until the bob hangs just over the designated point. With this point as a center, describe a series of concentric circles with radii varying by one inch (or by ½ inch). By noting the instant when the forenoon shadow of the bead crosses (or touches) any circumferences and the instant when the afternoon shadow crosses the same circumference, the time of apparent noon is given by taking one-half the sum (the mean) of the times of the two suggested instants.

To find the meridian, see Experiment No. 15, (a), (2).

Experiment No. 22. Construct a horizontal sun-dial. Apparatus for graduating a horizontal dial. Cut out and surface two wooden circles of 12 inches diameter and fit the half of one to the other at an angle of 48° (the colatitude of Chicago). Erect at the common center of the circles a wooden or iron rod, making an angle of 42° (the latitude) to the whole circle, and on the side opposite to the one on which the half-circle is fitted, as indicated in the figure. Cut the rod off to a length equal to the radius of the circles. Fasten one end of a flexible strip of copper, *EFG*, the length of which equals a quadrant of a circumference whose radius equals the radius of a circle, to the top end, *E*, of the rod, leaving it free to turn.



(a) = Graduating Apparatus,
(b) = Horizontal Dial,
(c) = Vertical Dial,

Fig. 20

Graduate the circle, *CD*, whose plane is perpendicular to the rod, *CE*, 5° or 10°; then by putting the end, *G*, of the copper strip, *EFG* (free to turn about *E*), at the successive points of graduation of the circle, *CD*, corresponding points may be transferred to the circumference of the full circle, *AB*, which, being connected with bottom of the rod, will indicate the consecutive positions of the shadow of the rod for twenty and forty minute intervals of time. This completes the apparatus for graduating the dial.

To make the dial:

(a) Insert a smooth stick in a surfaced board at an angle with the surface equal to the latitude of the place. Describe about the foot of the stick a circle of radius of six inches and transfer to this circle, from the point directly under the end of the stick, the graduations of the full circle of the graduating apparatus described above.

(b) Instead of the inclined stick the edge of a triangle may be used, whose angle, *HIJ*, is the latitude.

Experiment No. 23. To make and graduate a vertical dial.

On the south side of a vertical surface attach a triangle (or a rod, *KL*, foregoing cut) so that its plane shall be perpendicular to the vertical surface, *LM*, and its hypotenuse, *KL*, shall make an angle equal to the co-latitude (90°-latitude) with this surface.

To graduate the circle *L M*, an apparatus like the one for the horizontal dial may be used, save that here the angle *E C F* must be the *co-latitude* (90° latitude), and the angle *F C G* must here be equal to the *latitude* of the place.

Experiment No. 24. To construct a negative, or Huyghenian, eye-piece.

Procure two plano-convex lenses, one of ¾-inch diameter and 2 inches focal length, and the other of ¾-inch diameter and ¾-inch focal length. Roll up around a cylindrical stick, ⅝-inch diameter, heavy manila paper, using 6 or 7 ply, a cylindrical tube. The successive layers of paper may be stuck with library paste.

When the cylinder dries, cut off a piece 1⅜ inches, square the ends, and fit the lenses as suggested by the figure. Before attaching the lenses to the tube, cut from the center of two circular pieces of pasteboard a smooth hole ¼ inch in diameter, as at *B* and *D*. After pasting the edges of the first disk, stick it in the tube ¾ inch from one end, *D*, where the 2-inch focal lens is to be attached. The edges of the lenses may be stuck to the paper by means of gold-size. Complete the eye-piece as suggested

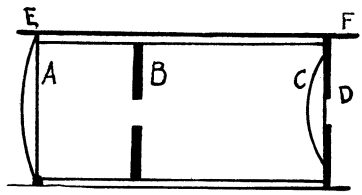


Fig. 21

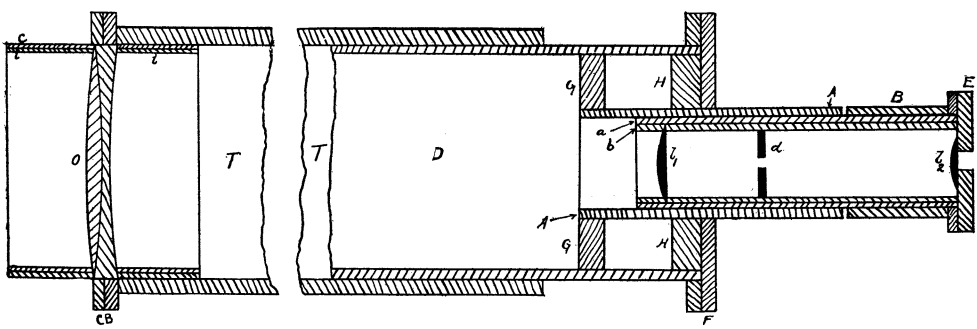
by the cut. The completed eye-piece should be covered with a layer of tissue paper, the edges of which are allowed to extend beyond the ends of the tube, as shown at *E* and *F*. The ends should then be stuck down around the edges of the lens, *A*, and of the pasteboard disk, *DF*.

(N. B.—This exercise is due to Dr. George Pyburn, and was published in *Popular Science Monthly*, Vol. XXIV, No. 1. The article is also reproduced as *Appendix A* in Miss Byrd's *Laboratory Manual*.)

EXPERIMENT No. 25. To make a telescope.

Obtain a 1½-inch x 30-inch achromatic object-glass, *O*, and roll up tubes of manila paper, stick with glue or library paste, and make a cell (as *c*) around it. Then roll up a tube, *T*, 30 inches long, and a draw-tube, such as D, some 15 inches long. Provide the back end of the draw-tube with cardboard flange, *F*, and roll up smaller tubes to fit, as indicated in the figure. The collars, *G G* and *H H*, may be made by rolling narrow strips of manila paper about the tube, *A*, until they just fit inside *D*. A strip of broadcloth, just wide enough to wrap once around the outside of *a*, should be glued to the outer surface of *a* to insure smooth sliding of *a* within *A*. The eye-piece was fully explained in Experiment No. 24.

(See *Appendix A* of Miss Byrd's *Laboratory Manual*.)



O. Objective.
C. Cell and cap.
i. Inner tube to hold cell.
T. Main tube.
D. Drawtube.
a. Eye-piece adapter.
B. Covering for eye-piece.
C B. Flange of Pasteboard.
F. Flange.
l1 and *l2*. Eye-piece lenses.
G and *H*. Shoulders.
d. Perforated diaphragm.

Fig. 22

Eleventh and Twelfth Grades

Latin, Eleventh Grade: (ALLEN W. GOULD.) In April the students will read the first sixteen chapters of the *Oration for Milo*, to show the condition of the Roman Republic just before Caesar seized the government. The attempt will also be made to help the pupils to see what the courts and legal procedure evolved by Rome meant to the whole world, and how this gift of the Roman race remained after government by reason and persuasion had failed.

General Geology, Eleventh Grade: (WALLACE W. ATWOOD.) The regions west of the Great Plains, including the plateaux and mountain ranges, remain to be considered. Over broad areas in this western country geological data have not been collected, and yet enough is known to make a classroom study of these regions very instructive.

Following Mr. Powell's subdivisions into physiographic regions, given in the *National Geographic Monographs*, the Stony Mountains can be differentiated from the Park Mountains of Colorado, the Columbian Plateaux from the Colorado Plateaux, and the open basin region south of the Colorado Plateaux from the closed basin region of Nevada and Utah.

From the thin scattering of known outcrops it is clear that much of this country was under water in relatively recent geological time. The mountains have the rough, rugged forms of youth, cañons are the dominating form of valley, the fresh lava flows scarcely differing in appearance from those poured out but a few years ago in Hawaii, the cinder cones and the geysers of the Yellowstone, all indicate the youth of this portion of our country.

Structurally, a great variety exists. Along the line of the Great Northern Railway the Stony Mountains are made of gently folded strata, lifted five to six thousand feet above the sea and somewhat deeply eroded. In the mountain valleys of this region glaciers exist to-day, but in pleistocene time these glaciers extended far down the valleys beyond their present limit, smoothing off the bordering hills, gouging out the bottoms, and leaving great banks of débris. The Park Mountains have been somewhat sharply folded, and erosion has gone on so far that the crystalline cores have been exposed at many places.

The Grand Cañon region has been faulted, but the layers are yet in approximately horizontal positions.

In the Great Basin region the strata have been faulted and upturned until the area may be thought of as a region of blocks so pitched as to make mountains. At many places in this western country volcanic outbursts have occurred; dykes, cinder cones, and lava flows are common in the southern portion; Mount Taylor of New Mexico and the San Francisco Mountains of Arizona are volcanic peaks rising many thousands of feet above the general plateau level, but nowhere in the West has vulcanism played so great a part in the recent history as in the region of the Columbian Plateaux.

West of the great plateaux are the Cascades, Sierra Nevadas, and Coast Ranges. Little is known of the details of their histories. They are all relatively young mountains, have suffered much from volcanic activity during growth, and are at many places sharply folded.

Ore deposits in this western country may be studied if time allows.

Art Expression: Chalk-modeling of land forms. Water-color paintings of scenes in the regions studied.

References: *National Geographic Monographs;* Davis, *Physical Geography;* Dutton, *Tertiary History of the Grand Cañon Region;* Emmons, *Rocky Mountain Geological Guide;* Russell, *Lakes of North America;* Gilbert, *Henry and Uinta Mountains*, and *Lake Bonneville.*

Chemistry, Eleventh and Twelfth Grades: (ALICE P. NORTON.) The spring quarter will be given to the study of minerals. The fall work in geology embraced a discussion of rocks and soils, and the physical causes of their formation and disintegration. The chemical side of these changes will now be emphasized. The laws of chemical change and combination, and the relation of chemical energy to heat, will be brought out more clearly than heretofore. An increasing number of chemical problems, involving mathematics, will present themselves. The determination of specific gravity and specific heat, of the combining weights of different substances, of the effects of temperature and pressure upon the volume of gases, will afford opportunity for much mathematical work.

The first group of minerals studied will be the carbonates. They will be considered under the following heads:

I. Occurrence in nature.
II. Recognition.
1. Hardness.
2. Color.
3. Luster.
4. Specific gravity.
5. Solubility.
6. Blow-pipe reactions.
7. Crystalline forms.
III. Study of elements combined.

French, Eleventh and Twelfth Grades: (LORLEY ADA ASHLÉMAN.) During the past month the pupils were upon one occasion allowed thirty minutes to write from memory what they recalled from the scene between Maugendre and Louveau. Two of the papers are printed below.

The written work gave rise to many interesting discussions, particularly on verbs and negatives, the use of the imperfect and past definite tenses, reflective verbs, mode used after *si*, etc.

I. Avec les verbes *cesser*, *oser*, *pouvoir*, *savoir*, on supprime *pas* et *point*, surtout quand ilssont suivis d'un infinitif.

"N'osez-vous entreprendre une cause si belle?"—*Delavigne.*

II. On supprime *pas* et *point* devant un subjonctif employé négativement, quand le premier verbe précède *personne*, *nul*, *aucun rien*, *nullement guère*, et *peu.*

"Il y a peu de plaisirs qui ne soient achetés trop cher."

III. Après le deuxième verbe d'une interrogation quand la phrase est moins une interrogation qu'un moyen de communiquer quelque chose avec emphase.

"Ne crains-tu pas que ta perte n'entraîne une autre perte plus cruelle?"

IV. Après les verbes *craindre*, *appréhender*, *avoir peur*, *trembler*, *il est dangereux*, et en général après les mots qui expriment la crainte, on met *ne* aussi dans la proposition subordonnée.

"Je dois craindre. Je crains qu'un songe ne m'abuse."—*Racine.*

V. Après *à moins que* on emploie *ne.*

"Je sortirai cueillir des violettes à moins que vous ne me défendiez."

VI. On emploie *ne* après *si* employé dans le sens de *à moins que* par une raison d'élégance.

"Prince, si tu n'as des vertus, on te rendra des hommages, et on te haïra."—*Thomas.*

VII. Après les verbes *désespérer*, *douter*, *disconvenir*, et *nier*, employés négativement et qu'ils précèdent *que.*

"On ne peut nier que cette vie n'ait des désagréments."

VIII. On supprime *pas* après *plus*, *moins*, *autre*, *autrement*, quand ces mots précèdent *que* devant un indicatif.

"Je n'ai d'autre ambition que de voir le bonheur des enfants."

IX. On emploie *ne* précédé de la conjonction *que* avec l'indicatif pour exprimer un souhait.

"Oh que ne suis-je proche du trône extérieur de Dieu, la nature."

X. Après *il s'en faut*, accompagné de la négation ou de l'adverbe *peu*, on emploie *ne* dans la phrase subordonnée.

"Peu s'en fallut que nous touchassions sur un rocher."—*Bernardin de St. Pierre.*

XI. Après *depuis que*, *il y a—que*, on retranche *pas* et *point*, si le verbe qui suit est à un temps composé.

"Les choses sont bien changées en France depuis que je ne vous ai vu."

La Jeunesse de Victor

Quand Victor avait sept ans la Mère Louveau l'envoya á l'école avec Clara. Victor portait les livres et les paniers, et il se battait pour défendre le goûter des appétits des morvandiaux (garçons). Il travaillait aussi très dur, et il apprenait plus dans un hiver que les autres écolièrs.

It était adroit et léger, et il grimpait sur les arbes pour attacher les cordes qui servaient à les abattre. Il grimpait très haut, et Clara s'en effrayait, mais Victor, comme tout autre garçon, se balançait tout exprès pour la taquiner.

Il y avait un charpentier, dans la forêt, qui vivait seul, et personne ne savait rien à son égard. Il disait au curé, qu'il était veuf. Il avait une grande affection pour Victor et lui disait, "Vous me rapellez mon fils que j'ai perdu il y a bien longtemps. Ce charpentier voulait adopter Victor, et l'envoyer au collège, mais François refusa cet offre.

Quand Victor avait douze ans la Mère Louveau tombait malade, et il n'y avait plus d'argent dans la maison. François perdit la tête et confondait la soupe et la médecine. Il laissa Victor à la maison pour soigner la malade. Il vendait son bois tout seul. En route pour Paris il trouva un acheteur malhonnête, qui le coula, et il retourna chez lui et raconta à sa femme l'histoire de la vente. Elle ne gronda pas, mais elle était très triste.

La Belle Nivernaise avait besoine d'être réparer, mais il n'y avait pas d'argent pour le faire. Louveau se décida d'aller à Clamecy. C'était très dur pour la famille de garder Victor, parcequ'il avait douze ans, il mangeait beaucoup, et il coûtait cher, mais ou ne voulait pas encore s'en séparer.

MARGARET NORTON.

Totor

Totor avait maintenant douze ans. Il mangeait comme un homme. Il pouvait manœuvre la gaffe quand l'Equipage se cassait quelque chose. Maugendre aurait beaucoup aimer le prendre. Il disait qu'il avait peur de mourir seul. Parce que sa femme était morte. Et il n'avait pas d'enfants. Si le père Louveau lui donnait Totor, Maugendre promit de l'envoyer à la ville, et au collège.

Et ça aurait été une grande chance pour Totor. Le pauvre Maugendre l'aimait beaucoup.

Les deux hommes étaient dans la cabine de la Belle Nivernaise. Ils voyaient Totor et Mimile dans leur lits. On pouvait entendre la rivière clapoter le long du bordage, et de temps en temps on pouvait entendre le sifflet des chemins de fer déchirant la nuit.

La mère Louveau éclata en sanglots; "Dieu ait pitié de nous! François je le garde!"

RUPERT MASON.

Mathematics, Eleventh and Twelfth Grades: (GEORGE W. MYERS.) Review of Algebra, Geometry, and Trigonometry.

These subjects will be reviewed by solving the following and similar problems of Mechanics:

Study carefully the text of p. 204 and column 1 to 205, together with Figs. 1 to 3 of the November COURSE OF STUDY.

1. P and Q are two fixed points in a horizontal line; at P a string of length of b is fastened, the other end being attached to a smooth ring at R, through which another string passes, with one end fastened at Q. Determine the position of R for equilibrium.

Suggestion: Call $PQ=a$, $PR=b$, $RPQ=x$, $RQP=y$, and the tension in the string, $PR,=T$. Then inquire what lines have given lengths; what forces given magnitudes, and what forces

are unknown, and what unknown lines or angles would fix the position of R?

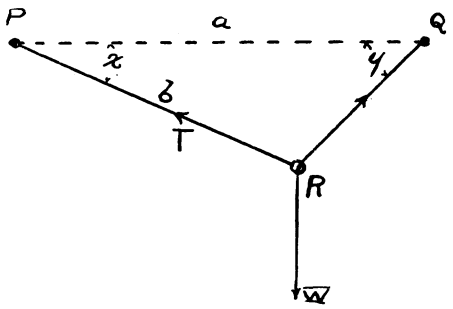


Fig. 1

Now show that $W\cos y = T\cos x$ and $W\sin y + T\sin x = W$ and eliminate T. This gives $\cos x = \sin(x+y)$, or $2x+y=90°$, and by Trig. $\frac{\sin(x+y)}{\sin y} = \frac{a}{b}$.

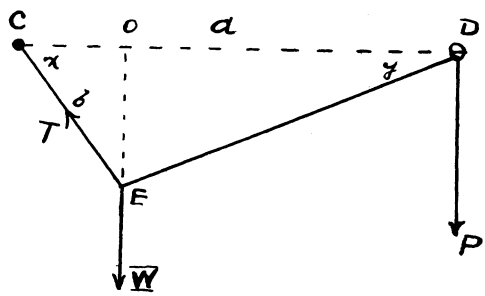


Fig. 2

2. One end of a string is attached to a fixed point, C, a weight, W, is tied to it at E; then it passes through a smooth fixed ring at D and terminates in the given load, P. Putting $x=ECD$ and $y=EDC$, find the values of x and y for equilibrium.

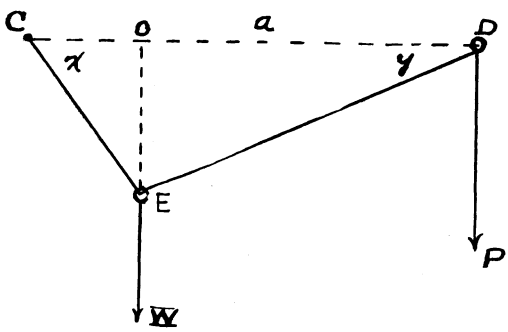


Fig. 3

3. If W is attached to the string at E by means of a smooth ring, find the value of x for equilibrium.

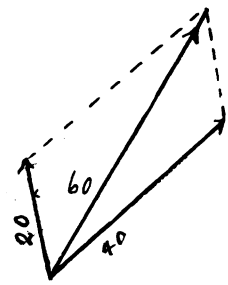


Fig. 4

4. Two forces of 20 and 40 act on a particle at an angle of 60°; find the resultant.

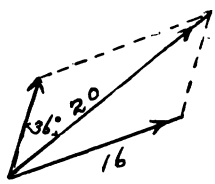


Fig. 5

5. The resultant of two forces is 20 lbs.; one of the forces is 16 lbs. and the other is inclined to the resultant at an angle of 36°. Find it, and also the angle between the two forces.

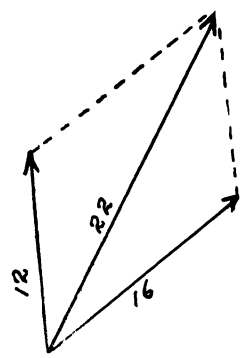


Fig. 6

6. A point is kept at rest by forces of 12, 16, and 22 lbs. Find the angle between the forces 12 and 16.

7. A particle of weight, W, is sustained on a smooth inclined plane by three forces, each equal to $W/3$; one acts vertically upward, one horizontally, and a third along the plane. Find the inclination, x, of the plane.

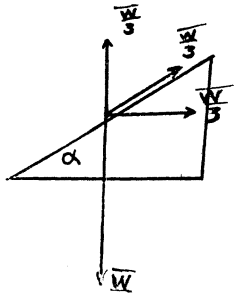


Fig. 7

8. Solve the exercises given on p. 206 of the November COURSE OF STUDY.

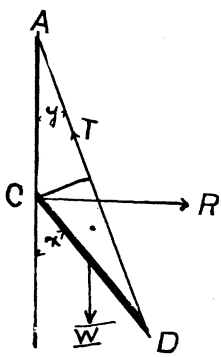


Fig. 8

9. A heavy beam, CD, rests in a vertical plane with one end, C, against a smooth vertical wall, and the other end, D, is fastened by a string, AD, of given length to a point, A, in the wall. It is required to determine the pressure against the wall, the tension of the string, and the position of the beam and the string.

10. The weight of the derrick equals 300 pounds, and the weight of the box it stands on is 50 pounds. The derrick stands on the center of the box, and the conditions are as shown in the figure. Will the box tip over?

Using the symbols and six fundamental relations given on p. 487, January COURSE OF STUDY, prove the following fundamental equations of Trigonometry:

1. $S^2+C^2=S^2C^2$.
2. $\frac{s}{1\pm c}=\frac{1\mp c}{s}$.
3. $\frac{c}{1\pm s}=\frac{1\pm s}{c}$.
4. $\frac{S\pm 1}{t}=\frac{t}{S\mp 1}$.

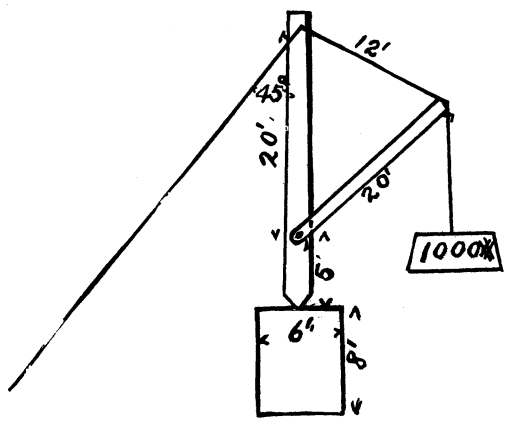


Fig. 9

5. $t+T=SC$.
6. Given $s=\frac{1}{2}$; find c, t, T, S, C, and v.
7. Given $c=-\frac{3}{5}$; find all the remaining numbers.
8. Given $t=\frac{8}{5}$; find all the remaining numbers.
9. Given $S=\frac{4}{3}$; find all the remaining numbers.
10. Given $s+c=1.2$; find s.
11. Prove $t^2-s^2=t^2s^2$.

References: Murray, *Plane Trigonometry;* Wells' *Essentials of Trigonometry;* Wells' *New Plane and Spherical Trigonometry;* any Elementary Mechanics and Civil and Mechanical Engineers' Pocketbooks.

History, Twelfth Grade: (EMILY J. RICE.) Subject: American History. The Revolution of 1800.

We shall first compare the economic condition of the United States one hundred years ago with that of the present time, and then trace the history of the cotton industry. See a monograph on the cotton industry by Hammond.

Each student will read Morse's *Life of Thomas Jefferson* in the *Statesmen Series*, and make this biography a center for the study of the political events of the period.

The literature for this month is Ruskin's *Of King's Treasuries.*

References: McMaster, *History of the People of the United States*, v. 2; Schouler, *History of the United States*, v. 2; Blaine, *Twenty Years in Congress*, v. 1 (for the

Louisiana Purchase); Sheldon, *American History* (for a description of New Orleans and for the Clarke expedition); Barrow's *Oregon*. For descriptions of the personality of Jefferson, Napoleon, and Toussaint L'Ouverture, see Henry Adams' *History of the United States*, v. 1 and 2; *Memoirs and Letters of Dolly Madison*, and Goodwin's *Dolly Madison;* Coues, *The Lewis and Clarke Expedition;* Lives of Jefferson, Madison, and Gallatin in the *Statesmen Series;* Goodrich, *Recollections of a Lifetime; A Girl's Life Eighty Years Ago*, Scribner's Magazine (May, 1887). Fiction: Dickens, *Tale of Two Cities;* Hale, *Man without a Country;* Martineau, *Peasant and Prince.*

German, Twelfth Grade: (DR. SIEGFRIED BENIGNUS.) The correlation of German with the history of the nineteenth century is continued in the way shown in the former numbers of the COURSE OF STUDY. The pupils will study the expedition against Mexico from 1861 to 1867, undertaken by France, England, and Spain, and continued from 1862 by Napoleon III. only, in order to check the influence of the Anglo-Germanic race and to strengthen the Romanic race by establishing a monarchy under the control of France. A sympathetic attention will be given to the drama of the unhappy Archduke Ferdinand Maximilian, allured to Mexico through the promises of Napoleon, and shot by the order of the president, Juarez, of Mexico.

In literature, the poets of the Earlier Romanticists will be completed: Heinrich von Kleist, Zacharias Werner, Adolf Müllner, Ernst von Houwald, Amadeus Hoffmann.

Following this, the poets and prose-writers of the Napoleonic wars, who contributed through their writings and valor to the liberation of Germany from Napoleon's yoke, will be considered: Max von Schenkendorf, Theodor Körner, Ernst Moritz Arndt, Friedrich Rückert, especially through his *Sonnets in Armor* (*Geharnischte Sonette*), Johann Gottlieb Fichte, through his *Reden an die Deutsche Nation*, Friedrich Schleiermacher, through his *Reden über die Religion*, Friedrich Ludwig Jahn, through his *Deutsches Volkstum.*

For memorizing, the following poem by Theodor Körner has been selected. It expresses in a most striking manner the veneration of the combatants of liberation toward their ideal woman, the Queen Louise of Prussia.

Vor Rauchs Büste der Königin Louise

Du schläfst so sanft!—Die stillen Züge hauchen
Noch Deines Lebens schöne Träume wieder;
Der Schlummer nur senkt seine Flügel nieder,
Und heil'ger Friede schliesst die klaren Augen.
So schlumm're fort, bis Deines Volkes Brüder,
Wenn Flammenzeichen von den Bergen rauchen,
Mit Gott versöhnt die rost'gen Schwerter brauchen,
Das Leben opfernd für die höchsten Güter.
Tief führt der Herr durch Nacht und durch Verderben;
So sollen wir im Kampf das Heil erwerben,
Dass uns're Enkel freie Männer sterben.
Kommt dann der Tag der Freiheit und der Rache:
Dann ruft Dein Volk; dann, *Deutsche Frau!* erwache,
Ein guter Engel für die gute Sache!

Theodor Körner, 1791–1813;
"Leyer und Schwert."

Music: (MISS GOODRICH.) *The First Grass, In April, Spring Song*, p. 83, *Spring Song*, p. 104, *Stay so, Sweet Season, April Showers, April, Come, Happy Spring, The Coming of Spring, The Daisy, Easter Ode, Pleasures of the Country*, Modern Music Series, Third Book; *Earth's Resurrection, Spring Joys*, Songs of Life and Nature.